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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/594,096

09/25/2006

Yasushi Okubo

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EXAMINER

HIGGINS, GERARD T

ART UNIT

PAPER NUMBER

1794

MAIL DATE

DELIVERY MODE

08/10/2009

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/594,096	<b>Applicant(s)</b> OKUBO ET AL.	
	<b>Examiner</b> GERARD T. HIGGINS	<b>Art Unit</b> 1794	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 24 April 2009.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) 5,6 and 9-17 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4,7,8,18 and 19 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Response to Amendment***

1. Applicant's amendments filed 04/24/2009 and 06/10/2009 have been entered. Currently claims 1-19 are pending, claims 5, 6, and 9-17 are withdrawn, and claims 18 and 19 are new.

### ***Specification***

2. The Examiner recognizes the corrected translation of the original International Application, which has been filed on 06/10/2009; further, it is noted that the specification amendments filed 04/24/2009 either show the same language as is in the 06/10/2009 specification or a correction thereof. Please note the discrepancy of section 3 below and the fact that the page and paragraph locations do not apply to the specification amendment filed 06/10/2009. Please refile the specification amendment from 04/24/2009 showing page and paragraph locations for the corrected translation of the International Application filed on 06/10/2009. Also please address the issue from section 3 below.
3. The disclosure is objected to because of the following informalities:
  - a. On page 10, line 23, "the films" appears to be incorrect. There is a discrepancy between the specification amendment filed 04/24/2009 and

06/10/2009 with regard to this issue. The specification filed 06/10/2009 appears to have corrected this problem.

Appropriate correction is required.

### ***Claim Objections***

4. Claims 2 and 19 are objected to because of the following informalities:
    - a. In claim 2, the phrase “on one of the surfaces of the transparent plastic film” renders the claim awkward because it is unclear if this is the same as the “two surfaces” mentioned in claim 1. This objection will be withdrawn if this phrase is amended to “on one of the two surfaces of the transparent plastic film.”
    - b. In claim 19, the phrase “the two kinds of metal elements” renders the claim awkward because it is unclear if these are the same as the “at least two kinds of metal elements” of claim 18. This objection will be withdrawn if the phrase is changed to “the at least two kinds of metal elements are Si and Ti.”
- Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
6. Claims 1-4, 7, 8, 18, and 19 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites the limitation "the other surface of the transparent conductive film" in the seventh and eighth lines of the claim. There is insufficient antecedent basis for this limitation in the claim. This rejection will be removed if: after "[a] transparent conductive film" on the first line of the claim the phrase "having two surfaces" is inserted; "from a surface" on the fifth line of the claim is deleted and "from one of the two surfaces" is inserted; and "the other surface" on the seventh line of the claim is deleted and "the other of the two surfaces" is inserted. The Examiner interprets the claim as set forth above.

Claim 18 recites the limitation "the gas barrier film" in the second line of the claim. There is insufficient antecedent basis for this limitation in the claim. This rejection will be removed if "film" is deleted and "layer" is inserted.

With further regard to claim 18, the claim is also indefinite because of the phrase "two **kinds** of metal elements." Besides metal elements, it is unclear what "kinds of metal elements" are meant to include. This rejection will be removed if the claim is changed to "wherein the gas barrier layer contains at least two metal elements," which is how the Examiner will interpret this claim.

With regard to claim 19, the claim seeks to depend from claim 20; however, there is no claim 20 and therefore the claim is indefinite. The Examiner interprets the claim as depending from claim 18.

***Claim Rejections - 35 USC § 102***

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 1, 4, 7, and 8 are rejected under 35 U.S.C. 102(b) as being anticipated by Ito et al. (JP 2003-303520), machine translation included.

With regard to claims 1, 4, and 8, Ito et al. disclose a transparent conductive film [0001]. The transparent conductive film comprises a transparent base material, which reads on applicants' transparent plastic film, a gas barrier layer, and a transparent conductive layer [0017]. The gas barrier layer may be formed on the transparent base film with the transparent conductive layer formed on top of the gas barrier layer [0017]. The transparent base film maybe a cellulose ester [0110], the gas barrier layer may be an oxide with a mixture of silicon and titanium [0091], and the transparent conductive layer may be ITO [0094]. The Examiner clearly envisages forming a gas barrier layer with any metal oxide seen at [0091].

With regard to the limitation that the refractive index is controlled to decrease stepwise from a surface of the transparent conductive film having the transparent conductive layer to the other surface of the transparent conductive film, the Examiner notes that ITO will inherently have a refractive index of 2.05, a 1 to 1 mixture of oxides of silicon and titanium will inherently have a refractive index of 1.76, and a cellulose

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ester film will inherently have a refractive index of 1.47-1.50 (1.48 according to applicants' specification). This device of Ito et al. will inherently meet the limitations in claim 1.

With regard to claim 7, cellulose acetate will inherently have a  $T_g$  of greater than 180 °C.

### ***Claim Rejections - 35 USC § 103***

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 2, 18, and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ito et al. (JP 2003-303520), as applied to claim 1 in view of Yuasa et al. (JP2000-192246) and Veligdan (6,307,995).

Ito et al. disclose all of the limitations of applicants' claim 1 in section 8 above; further, they disclose the specific arrangement of layers claimed in claim 2; however, they fail to disclose that the gas barrier layer has a continuous or stepwise decrease in its index of refraction when going from a surface in contact with the transparent conductive layer to a surface in contact with the transparent plastic film.

Yuasa et al. teach that it is known to vary the percentage of silicon dioxide and titanium dioxide within a functionally gradient optical film [0012], [0035], and [0069].

Veligdan teaches that it is known to vary the refractive index gradually and continuously throughout an optical waveguide (Abstract); specifically, the index of refraction decreases as one gets further from the central plane. This is done so specifically to reduce glare (col. 2, line 61 to col. 3, line 5).

Since Ito et al., Yuasa et al. and Veligdan are drawn to optical waveguides; it would have been obvious to one having ordinary skill in the art to make the silicon titanium oxides gas barrier layer of Ito et al. a functionally gradient optical material as taught by Yuasa et al.; furthermore, it would have been obvious to vary the gradient such that the index of refraction was higher at the side contacting the transparent conductive layer than the side contacting the transparent plastic film. Veligdan teaches that this index of refraction gradient is the preferred arrangement because it reduces glare in the optical waveguide overall. Please note that one of ordinary skill would know that the transparent conductive layer would be closer to the core layer, while the transparent plastic film would be the outer protective film.

Lastly, one of ordinary skill would know to make the functional gradient material such that the index of refraction at the side contacting the ITO transparent conductive layer would most closely match that of ITO and also that the index of refraction at the side contacting the cellulose ester transparent plastic film would most closely match that of the cellulose ester transparent plastic film. This would have been known because if there was a large difference in indices of refraction it would promote internal reflections that would result in loss of light intensity. Index of refraction matching between layer



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divisions would promote the largest light intensity, as taught by Veligdan at col. 1, line 62 to col. 3, line 43).

With regard to claims 18 and 19, given the combined teachings of Ito et al. Yuasa et al., and Veligdan, the Examiner has clearly taught a gas barrier layer that comprises silicon dioxide and titanium dioxide that continuously or stepwise changes its index of refraction from a surface in contact with the transparent conductive layer to a surface being in contact with the transparent plastic film.

11. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ito et al. (JP 2003-303520), as applied to claim 1 in view of Sakai et al. (JP 10-309770) and Veligdan (6,307,995).

Ito et al. disclose all of the limitations of applicants' claim 1 in section 8 above; however, they fail to disclose the layer arrangement and the refractive index trend of claim 3.

Sakai et al. disclose a transparent electric conduction sheet used in display devices [0001]. The conduction sheet, which reads on applicants' transparent conductive film, is comprised of a gas barrier film, a hardenability resin sheet, which reads on applicants' transparent plastic film, and a conducting film, which reads on applicants' transparent conductive layer [0009]. Sakai et al. give two possible laminating sequences at [0048], including "a sheet which forms a hardenability resin sheet between...a gas barrier film and a conducting film" and "a gas barrier film between a hardenability resin sheet and a conducting film." Although this passage is

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confusing due to translation, the Examiner is interpreting it to disclose both of these possibilities based upon the context of the overall paragraph.

Veligdan teaches that it is known to vary the refractive index continuously throughout an optical waveguide (Abstract); specifically, the index of refraction decreases as one gets further from the central plane. This is done so specifically to reduce glare (col. 2, line 61 to col. 3, line 5).

Since Ito et al., Sakai et al., and Veligdan are drawn to optical waveguides; it would have been obvious to one having ordinary skill in the art to make the transparent conductive film of Ito et al. of the arrangement of Sakai et al. The results of which would have been predictable to one having ordinary skill because Sakai et al. teach the two arrangements as functional equivalents; furthermore, it would have been obvious to vary the index of refraction in the gas barrier layer such that it was lower than the transparent plastic film. Veligdan teach that this index of refraction gradient is the preferred arrangement because it reduces glare in the optical waveguide overall (col. 2, line 61 to col. 3, line 5). Please note that one of ordinary skill would know that the transparent conductive layer would be closer to the core layer, while the transparent plastic film and the gas barrier layer would be the outer layers in this arrangement.

### ***Response to Arguments***

12. Applicant's arguments, see Remarks, filed 04/24/2009, with respect to the objections to the drawings, many of the objections to the specification, and the rejection

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of claim 3 under 35 U.S.C. 112, second paragraph have been fully considered and are persuasive. The relevant objections/rejections have been withdrawn.

13. Applicant's arguments filed 04/24/2009 have been fully considered but they are not persuasive.

Applicants argue that the Examiner has not taught the limitations of claim 1 with regard to the limitation that the "refractive index is controlled so that the refractive index continuously or stepwise decreases from a surface of the transparent conductive film having the transparent conductive layer to the other surface of the transparent conductive film."

The Examiner respectfully disagrees and notes that applicants' limitations that the "refractive index is controlled," insofar as applicants are reading it, is a product-by-process limitation. It has been held that "even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." Please see MPEP 2112 and *In re Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985). The Examiner clearly envisages forming a gas barrier layer with any metal oxide seen at [0091]; furthermore, the Examiner clearly envisages forming a gas barrier layer with mixtures of any of the metal oxides seen at [0091], including a 1 to 1 SiO<sub>2</sub>/TiO<sub>2</sub> film. Given the materials that have

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been set forth, the Examiner deems that Ito et al. disclose a transparent conductive film that reads on applicants' claim 1. That someone conceptually considered to make a film that way is a product-by-process consideration and does not change the fact that Ito et al. disclose a film that reads on applicants' claim 1.

Applicants argue that Ito et al. does not teach making the transparent conductive film have a decreased index of refraction from the transparent conductive layer to the transparent plastic film.

The Examiner respectfully disagrees and renews his argument with regard to product-by-process limitations. Ito et al. disclose an ITO film as a transparent conductive layer, which has an index of refraction of 2.05, and a cellulose ester transparent plastic film, which has an index of refraction of 1.47-1.50. The Examiner notes that these refractive indices are specifically disclosed by applicants in their specification, and also the Examiner notes that the refractive indices are inherent to the respective materials; further, these refractive indices clearly teach a transparent conductive film having a decreased index of refraction from the transparent conductive layer to the transparent plastic film as claimed.

Applicants argue that the Examiner has no motivation to achieve a 1 to 1 SiO<sub>2</sub>/TiO<sub>2</sub> film.

The Examiner clearly envisages such a film and notes that the present rejection is under anticipation and not obviousness; furthermore, it is noted that Ito et al. also mention at [0091] that such factors as "gas barrier property, transparency, surface smoothness, flexibility, membrane stress" are all involved in picking the metal oxides to

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use in their film. Given the level of ordinary skill in the art set forth above with regard to refractive indices, the 1 to 1 SiO<sub>2</sub>/TiO<sub>2</sub> film clearly envisaged by the Examiner would be a wise layer for a gas barrier layer to one having ordinary skill in the art from the perspective of transparency and cost.

Applicants argue that the Examiner has not set forth a case that Ito et al. would inherently satisfy claim 1.

The Examiner respectfully disagrees and notes that the Examiner has set forth the refractive indices of each of the layers taught by Ito et al. Applicants have not disputed the index of refraction of each of the individual layers set forth by the Examiner. Given the index of refraction of each of the individual layers, the Examiner deemed that the article of Ito et al. would inherently satisfy the structural limitations that the "refractive index is controlled so that the refractive index continuously or stepwise decreases from a surface of the transparent conductive film having the transparent conductive layer to the other surface of the transparent conductive film." Applicants have provided no evidence to show that the article taught by the Examiner would not meet claim 1, and therefore applicants' arguments are unconvincing in this regard.

Applicants argue that Yuasa and Veligdan are "silent with respect to a transparent conductive film having a gas barrier layer."

The Examiner first notes that applicants appear to be arguing the references individually. Yuasa et al. is used to teach that it is known to vary the percentage of silicon dioxide and titanium dioxide within a functionally gradient optical film [0012], [0035], and [0069]. Veligdan is used to teach that it is known to vary the refractive index

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gradually and continuously throughout an optical waveguide (Abstract); specifically, the index of refraction decreases as one gets further from the central plane. This is done so specifically to reduce glare (col. 2, line 61 to col. 3, line 5). The Examiner maintains that the combination of Yuasa and Veligdan with Ito et al. remains proper because they are all drawn to optical films.

Applicants argue that the combination of references does not result in the claimed invention or “any reason to do so.”

The Examiner respectfully disagrees, notes all of the above arguments, notes that the Examiner taught each of the limitations in section 10 above, and notes that the Examiner provided rationale in the same section for the combination of Ito et al., Yuasa, and Veligdan. Applicants' arguments in this regard are unconvincing.

The Examiner notes that applicants have not specifically addressed the rejection of claim 3.

### ***Conclusion***

14. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within

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TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to GERARD T. HIGGINS whose telephone number is (571)270-3467. The examiner can normally be reached on M-Th 10am-8pm est. (Friday off).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Ruthkosky can be reached on 571-272-1291. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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